

WE CLAIM:

1. A method for transferring state information in a computer cluster comprising a plurality of computer nodes, the method comprising the steps of:

- transmitting a heartbeat message from a first computer node of a computer cluster to a second computer node of the computer cluster, the second computer node including at least one resource for performing at least one cluster-specific task;

- receiving the heartbeat message in the second computer node;

- retrieving state information for a heartbeat acknowledgment message to be sent as a response to said heartbeat message, the state information indicating an ability of said at least one resource to perform said at least one cluster-specific task; and

- sending the state information in the heartbeat acknowledgment message to the first computer node.

2. A method according to claim 1, further comprising a step of examining, in response to the receiving step, whether state information is to be retrieved for the heartbeat acknowledgment message.

3. A method according to claim 2, wherein the examining step includes examining whether a predetermined condition is fulfilled.

4. A method according to claim 3, wherein the retrieving and sending steps are performed when the examining step indicates that the predetermined condition is fulfilled, and wherein the method further comprises the step of transmitting a heartbeat

acknowledgment message without state information when the examining step indicates that the predetermined condition fails to be fulfilled.

5. A method according to claim 1, further comprising a step of determining a type of state information to be retrieved for the heartbeat acknowledgment message.

6. A method according to claim 1, further comprising a step of storing the state information sent to the first computer node in a Management Information Base (MIB).

7. A method according to claim 6, further comprising a step of transferring data from the Management Information Base to an entity external to the computer cluster.

8. A computer cluster comprising a plurality of computer nodes, the computer cluster comprising:

- first means for transmitting a heartbeat message from a first computer node of the computer cluster to a second computer node of the computer cluster, the second computer node including at least one resource for performing at least one cluster-specific task;

- second means for receiving the heartbeat message in the second computer node;

- third means for retrieving state information for a heartbeat acknowledgment message to be sent as a response to said heartbeat message, the state information indicating an ability of said at least one resource to perform said at least one cluster-

specific task; and

- fourth means for sending the state information in the heartbeat acknowledgment message to the first computer node.

9. A computer cluster according to claim 8, further comprising a Management Information Base (MIB) operably connected to the first computer node for storing the state information sent to the first computer node.

10. A computer cluster according to claim 9, further comprising first access means for accessing the Management Information Base from the computer cluster.

11. A computer cluster according to claim 9, further comprising second access means for accessing the Management Information Base from outside of the computer cluster.

12. A computer cluster according to claim 11, wherein the second access means comprise a network interface in the first computer node.

13. A computer node for a computer cluster, the computer node comprising:

- at least one resource for performing at least one cluster-specific task;
- first means for receiving a heartbeat message from another computer node;
- second means for retrieving state information for a heartbeat acknowledgment message to be sent as a response to said heartbeat message, the state information

indicating the ability of said at least one resource to perform said at least one cluster-specific task; and

- third means, responsive to the second means, for sending the state information in the heartbeat acknowledgment message to said another computer node.

14. A computer node according to claim 13, further comprising fourth means for examining whether state information is to be retrieved for the heartbeat acknowledgment message.

15. A method for obtaining state information in a computer cluster comprising a plurality of computer nodes, the method comprising the steps of:

- transmitting a heartbeat message from a first computer node of a computer cluster to a second computer node of the computer cluster, the second computer node including at least one resource for performing at least one cluster-specific task;

- awaiting receipt of a heartbeat acknowledgment message from the second computer node; and

- receiving the heartbeat acknowledgment message including state information indicating an ability of said at least one resource to perform said at least one cluster-specific task.

16. A method according to claim 15, further comprising a step of storing the state information sent to the first computer node in a Management Information Base (MIB).

17. A method according to claim 16, further comprising a step of transferring data from the Management Information Base to an entity external to the computer cluster.

18. A method according to claim 15, wherein the step of a receiving the heartbeat acknowledgment message further comprises removing the second computer node from the cluster when no heartbeat acknowledgement message is received within a predetermined period of time.

19. A method for providing state information in a computer cluster comprising a plurality of computer nodes, the method comprising the steps of:

- awaiting receipt of a heartbeat message from a first computer node of a computer cluster by a second computer node of the computer cluster;
- receiving the heartbeat message from the first computer node, the heartbeat message including at least one resource for performing at least one cluster-specific task; and
- transmitting a heartbeat acknowledgment message including state information indicating an ability of said at least one resource to perform said at least one cluster-specific task.

20. A method according to claim 19, further comprising a step of examining, in response to the receiving step, whether state information is to be retrieved for the

heartbeat acknowledgment message.

21. A method according to claim 20, wherein the examining step includes examining whether a predetermined condition is fulfilled.

22. A method according to claim 21, wherein a step of retrieving state information for the heartbeat acknowledgment message and the transmitting step are performed when the examining step indicates that the predetermined condition is fulfilled, and wherein the method further comprises the step of transmitting a heartbeat acknowledgment message without state information when the examining step indicates that the predetermined condition fails to be fulfilled.

23. A method according to claim 19, further comprising a step of determining a type of state information to be retrieved for the heartbeat acknowledgment message.